

CLAIMS

1. A channel-estimating apparatus comprising:

an input unit operable to receive several pieces of channel information from a plurality of receivers, said plurality of receivers being operable to perform MIMO
5 communication through a plurality of channels;

an estimating unit operable to collectively estimate statuses of the plurality of channels in accordance with the several pieces of channel information received by said input unit, whereby estimation results are generated; and

an output unit operable to feed the estimation results into said plurality of

10 receivers.

2. A channel-estimating apparatus as defined in claim 1, wherein each of said plurality of receivers comprises a plurality of antennas and a plurality of receiving units, each of said plurality of receiving units being connected to corresponding one of said plurality of antennas, and wherein each of the several pieces of channel information is received electrical power of a signal received by each of said plurality of receiving units.
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3. A channel-estimating apparatus as defined in claim 2, wherein said estimating unit divides the received electrical power by each predetermined electrical power value, thereby generating the estimation results.

20 4. A channel-estimating apparatus as defined in claim 1, wherein said estimating unit generates the estimation results for all of the plurality of channels.

5. A channel-estimating apparatus as defined in claim 4, wherein the estimation results are a combination of as many pieces of estimation results as the plurality of channels.

25 6. A channel-estimating apparatus as defined in claim 2, wherein each of said plurality of receiving units possesses weighting coefficients for use in weighting the received electrical power, and wherein said estimating unit generates coefficients as the

estimation results, the coefficients being corresponding to the weighting coefficients.

7. A channel-estimating apparatus as defined in claim 6, wherein said output unit feeds a coefficient set into said plurality of receivers, the coefficient set including the coefficients.

5 8. A channel-estimating apparatus as defined in claim 7, wherein the coefficients in the coefficient set correspond in number to all of said plurality of antennas possessed by said plurality of receivers.

9. MIMO communication-adapted communication equipment, comprising:

10 an input unit operable to receive several pieces of channel information from a plurality of receivers, said plurality of receivers being operable to perform MIMO communication through a plurality of channels;

an estimating unit operable to collectively estimate statuses of the plurality of channels in accordance with the several pieces of channel information received by said input unit, whereby estimation results are generated; and

15 an output unit operable to feed the estimation results into said plurality of receivers.

10. A communication system comprising:

a plurality of receivers operable to provide MIMO communication through a plurality of channels; and

20 a channel-estimating apparatus operable to estimate statuses of the plurality of channels,

wherein said channel-estimating apparatus includes:

an input unit operable to receive several pieces of channel information from said plurality of receivers;

25 an estimating unit operable to collectively estimate statuses of the plurality of channels in accordance with the several pieces of channel information received by said input unit, whereby estimation results are generated; and

an output unit operable to feed the estimation results into said plurality of receivers.

11. A communication system as defined in claim 10, wherein each of said plurality of receivers includes a plurality of antennas and a plurality of receiving units,
5 each of said plurality of receiving units being connected to corresponding one of said plurality of antennas, and wherein each of the several pieces of channel information is received electrical power of a signal received by each of said plurality of receiving units.

10 12. A communication system as defined in claim 11, wherein said estimating unit divides the received electrical power by each predetermined electrical power value, thereby generating the estimation results.

13. A communication system as defined in claim 10, wherein said estimating unit generates the estimation results for all of the plurality of channels.

14. A communication system as defined in claim 13, wherein the estimation results are a combination of as many pieces of estimation results as the plurality of channels.
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15. A communication system as defined in claim 11, wherein each of said plurality of receiving units possesses weighting coefficients for use in weighting the received electrical power, and wherein said estimating unit generates coefficients as the
20 estimation results, the coefficients being corresponding to the weighting coefficients.

16. A communication system as defined in claim 15, wherein said output unit feeds a coefficient set into said plurality of receivers, the coefficient set including the coefficients.

17. A communication system as defined in claim 16, wherein the coefficients
25 in the coefficient set correspond in number to all of said plurality of antennas possessed by said plurality of receivers.

18. A communication system as defined in claim 10, wherein the MIMO

communication is made through antennas possessed by at least two receivers among said plurality of receivers.